

What is claimed is:

1. 1. An exhaust gas scrubber for removing a chemical component of an exhaust gas of  
2 a process chamber located upstream of the scrubber by chemical vapor deposition  
3 of a film, the scrubber comprising:
  - 4 a. an enclosure defining a CVD chamber for receiving the exhaust gas, said  
5 enclosure having a gas inlet for receiving the exhaust gas from the process  
6 chamber and a gas outlet each in fluid communication with said CVD  
7 chamber; and
  - 8 b. at least one substrate contained within said enclosure between said gas  
9 inlet and said gas outlet, said substrate having a film deposition surface for  
10 receiving the film.
1. 2. An exhaust gas scrubber according to claim 1, wherein said at least one substrate  
2 is made of quartz.
1. 3. An exhaust gas scrubber according to claim 1, wherein said at least one substrate  
2 forms a baffle.
1. 4. An exhaust gas scrubber according to claim 3, wherein said baffle includes a  
2 plurality of apertures for allowing the exhaust gas stream to flow through said  
3 baffle.
1. 5. An exhaust gas scrubber according to claim 1, further comprising a plurality of  
2 said substrates forming a series of baffles within said chamber.

1       6. An exhaust gas scrubber according to claim 5, wherein each baffle of said series  
2           of baffles includes a plurality of apertures for allowing the exhaust gas stream to  
3           flow through each of said series of baffles.

1       7. An exhaust gas scrubber according to claim 5, wherein said series of baffles are  
2           positioned at an angle to define a serpentine or spiral passageway within said  
3           CVD chamber.

1       8. An exhaust gas scrubber according to claim 1, further comprising a heating  
2           element for heating at least one of said enclosure and said at least one substrate.

1       9. An exhaust gas scrubber according to claim 1, wherein said at least one substrate  
2           is removable and reusable after the film has been removed.

1       10. An exhaust gas scrubber according to claim 1, wherein the chemical component  
2           of the exhaust gas is silicon.

1       11. A system for processing a semiconductor wafer with a gas having a chemical  
2           component, comprising:  
3           a. a first enclosure defining a first chamber for receiving the semiconductor  
4              wafer and the gas; and  
5           b. a scrubber comprising:  
6              i. a second enclosure defining a second chamber for receiving at least  
7              a portion of the gas from said first chamber, said second enclosure  
8              having a gas inlet in fluid communication with said first chamber  
9              and said second chamber and a gas outlet in fluid communication  
10             with said second chamber; and

11                   ii. at least one substrate contained within said second chamber and  
12                   located between said gas inlet and said gas outlet, said substrate  
13                   having a film deposition surface for receiving a film composed of  
14                   the chemical component of the gas.

1       12. A system according to claim 11, further comprising a pump located between said  
2                   first chamber and said second chamber for pumping the gas from said first  
3                   chamber to said second chamber via said gas inlet.

1       13. A system according to claim 11, further comprising a heating element for heating  
2                   at least one of said second enclosure and said at least one substrate.

1       14. A system according to claim 11, further comprising an abatement device for  
2                   removing at least one component of the exhaust gas not deposited on said  
3                   substrate.

1       15. A scrubber for scrubbing a gas containing a non-toxic part and a toxic part, the  
2                   scrubber comprising:  
3                   a. a first enclosure defining a first chamber for receiving the gas, said first  
4                   chamber for removing at least a portion of the non-toxic part of the  
5                   exhaust gas by chemical vapor deposition; and  
6                   b. a second enclosure defining a second chamber in fluid communication  
7                   with said first chamber, said second chamber for receiving at least a  
8                   portion of the gas, said second chamber for removing at least a portion of  
9                   the toxic part from the gas.

- 1 16. A scrubber according to claim 15, further comprising a substrate located in said  
2 first enclosure, said substrate for receiving by chemical vapor deposition a film  
3 containing the non-toxic part of the gas.
- 1 17. A scrubber according to claim 15, wherein the non-toxic part comprises silicon.
- 1 18. A scrubber according to claim 15, wherein the toxic part comprises arsenic.
- 1 19. A method for scrubbing an exhaust gas of a manufacturing process, the exhaust  
2 gas comprising a first chemical component and a second chemical component,  
3 comprising the steps of:
  - 4 a. flowing the exhaust gas through an enclosure defining a chamber and  
5 containing at least one substrate; and
  - 6 b. causing the first chemical component to be chemical vapor deposited onto  
7 said at least one substrate.
- 1 20. A method according to claim 19, further comprising the step of removing the  
2 second chemical component from the exhaust gas after performing step b).
- 1 21. A method according to claim 19, wherein step b) is performed by heating at least  
2 one of said at least one substrate and said enclosure to at least 800°C.
- 1 22. A method according to claim 21, wherein step b) is performed by heating at least  
2 one of said at least one substrate and said enclosure to at least 1100°C.
- 1 23. A method according to claim 19, wherein the first chemical component is non-  
2 toxic and the second chemical component is toxic.

1 25. A method according to claim 19, further comprising after step b) the steps of:

- a. removing said at least one substrate from said enclosure;
- b. cleaning said at least one substrate of any film deposited thereon;
- c. installing said at least one substrate in said enclosure; and
- d. again causing the first chemical component to be chemical vapor deposited onto said at least one substrate.